Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V/SYNTHETIC MINOR (DRAFT PERMIT) NO. V-06-037
ARMSTRONG Hardwood Flooring Company
SOMERSET, KY 42501
SEPTEMBER 25, 2006
D. BRIAN Ballard, REVIEWER

SOURCE I.D. #:	21-199-00074
SOURCE A.I. #:	3813
ACTIVITY #:	APE20040001

SOURCE DESCRIPTION:

Armstrong Hardwood Flooring Company makes pre-finished hardwood flooring. The source has a veneer mill where veneer is sliced and dried. Pieces are then sorted, edged and spliced by gluing to form sheets. Sheets are laminated (glued) onto a two-ply base to form a three-ply hardwood veneer plywood. This plywood is ripped into strips of either 2.5 or three inches wide, sanded and sealed. Sides and ends are prepared then strips are stained, sealed, and top coated. Finished pieces are then graded and packed for shipment.

Permit V-06-037 is based on the renewal application received July 23, 2004, correspondence received on May 11, 2005, a minor modification application received May 27, 2005 and a Compliance Assurance Monitoring Plan received by e-mail on August 23, 2006.

Emission sources at the facility include two 16.74 MMBTU/hr wood-fired boilers with natural gas as a secondary fuel; woodworking operations consisting of various cutting, milling, sanding, truck load out and finishing operations; two finishing lines consisting of stain application, sealer/topcoat application, drying ovens, clean-up solvents and curing ovens; and panel pressing, veneer splicing, veneer dryer and a veneer stabilization process. The dryers and ovens are natural gas-fired.

COMMENTS:

The boilers are each equipped with a multiclone dust collector. Emission factors are referenced from AP-42, Fifth Edition, Volume I, Chapter 1, External Combustion Sources, Section 1.6 – Wood Residue Combustion and Section 1.4 – Natural Gas Combustion.

Wood Residue Combustion: PM, PM_{10} and $PM_{2.5}$ emission factors are referenced from Table 1.6-1 (9/03). CO, NO_X and SO_2 emission factors are referenced from Table 1.6-2 (9/03). The VOC emission factor is referenced from Table 1.6-3 (9/03). The highest heating value for the wood is taken as 7,680 BTU/lb. HAP emission factors for wood combustion are referenced from Tables 1.6-3 (09/03) and 1.6-4 (09/03).

Natural Gas Combustion:CO and NO_X emission factors are referenced from Table 1.4-1 (7/98). PM, PM_{10}, SO_2 and VOC emission factors are referenced from Table 1.4-2 (7/98). The heating value for natural gas is taken as 1,020 BTU/SCF. HAP emission factors for natural gas combustion are referenced from Tables 1.4-3 (7/98) and 1.4-4 (7/98).

COMMENTS (CONTINUED):

The applicable regulation to the boilers is 401 KAR 59:015, New Indirect Heat Exchangers. The boilers are assumed to be in compliance with the PM and SO_2 standards based on the above referenced emission factors.

The wood working operations are equipped with a total of eight (8) cyclones and baghouses. The baghouses use polyester bags. Baghouses 1 – 5 have 4,800 ft^2 of filter area and baghouses 6 – 8 have 4,000 ft^2 of filter area. Emissions from wood working operations are determined based on the ACFM flowrate of air through each baghouse and assuming a post cyclone grain loading in the air of 10 grains per DSCF. ACFM is assumed to be the same as DSCFM. Each baghouse is assumed to have a control efficiency of 99.9 percent. The applicable regulations to the woodworking operations are 401 KAR 59:010, New Process Operations and 40 CFR Part 64, Compliance Assurance Monitoring. The mass emission standard for each baghouse vent is 10.03 lb/hr. This emission limit is determined by a process weight rate of 10,487 lb/hr. The process weight rate is determined as follows:

Potential annual throughput = 64,239,998 ft^2 of panels

Panel thickness used = 0.42 in = 0.035 ft

Potential annual throughput = 64,239,998 ft^2 x 0.035 ft = 2,248,400 ft^3 of panels

Density of panel = 1.43 lb/ft^2 / 0.035 ft = 40.86 lb/ft^3

Potential annual throughput = 2248400 ft^3 x 40.86 lb/ft^3 = 91,863,197 lb

Potential hourly throughput = 91,863,197 lb / 8,760 hours = 10,487 lb/hour

The hourly allowable per 401 KAR 59:010 is 3.59 x (10,487 lb/hour / 2000 lb/ton)^0.62 = 10.03 lb/hour

Compliance with the mass standard shall be assumed when the baghouse(s) are in place and operating efficiently. Compliance with the opacity standard shall be based on conducting qualitative visual observations and performing Method 9 readings upon seeing visible emissions.

Stain application is accomplished by roll coating. VOC and HAP emissions are determined by material balance assuming the entire content of VOC and/or HAP in the stain is emitted.

Sealer and topcoat application is accomplished by roll coating. VOC and HAP emissions are determined by material balance assuming the entire content of VOC and/or HAP in the sealer/topcoat is emitted.

The emissions of VOC and HAP from the panel press are determined using emission factors from AP-42 Table 10.5-6 (01/02) and by material balance. Emission factors from Table 10.5-6 are for urea formaldehyde (UF) resin, hardwood plywood. The emissions determined by material balance are based on adhesive used in the panel press and veneer splicing processes, assuming the entire content of VOC and/or HAP in the adhesive is emitted. Either UF resin or vinyl acetate resin will be used in the panel press. Potential to emit has been determined assuming only UF resin usage.

COMMENTS (CONTINUED):

The application of stabilizer in the veneer treatment line is by roll coater. VOC and HAP emissions are determined by material balance assuming the entire content of VOC and/or HAP in the stabilizer is emitted.

Emissions from the veneer dryer are determined using emission factors from AP-42. The PM emission factor is referenced from Table 10.5-1 (01/02). Due to absence of data, the PM_{10} emission factor is assumed to equal the PM emission factor. . The CO and NO_X emission factors are referenced from Table 10.5-2 (01/02). The VOC emission factor and HAP emission factors are referenced from Table 10.5-3. All emission factors are for direct, natural gas-fired, heating zones except for VOC and HAP which utilize factors from heating and cooling zones in some instances. Emission factors are for softwood drying due to the unavailability of emission data for hardwood drying for veneer dryers of this type.

Example conversion of 10,000 ft^2 1/8 inch-basis to 10,000 ft^2 3/8 inch-basis:
10,000 ft^2 1/8 inch-basis = 10,000 ft^2 3/8 inch-basis x (1/8) / (3/8) = 3,333 ft^2 3/8 inch-basis.

The applicable regulation to the veneer dryer is 401 KAR 59:010, New Process Operations. The mass emission standard for the veneer dryer is 6.99 lb/hour. This emission limit is determined by a process weight rate of 5,855 lb/hour. The process weight rate is determined as follows:

Maximum hourly throughput of veneer = 8,000 ft^2 of 1/8 inch thick veneer

Maximum hourly volume of veneer = 8,000 ft^2 x (1/8 inch x 1 ft/12 inch) = 83.33 ft^3

Density of 1/8 inch thick veneer = 0.7319 lb/ft2 / (1/8 inch x 1 ft/12 inch) = 70.26 lb/ft^3

Potential hourly throughput = 83.33 ft^3/hour x 70.26 lb/ft^3 = 5,855 lb/hour

The hourly allowable per 401 KAR 59:010 is 3.59 x (5,855 lb/hour / 2000 lb/ton)^0.62 = 6.99 lb/hour

Emissions from natural gas combustion in the dryers (excluding the veneer dryer) and ovens is determined using emission factors from AP-42 Table 1.4-1 (7/98) and Table 1.4-2 (7/98).

EMISSION AND OPERATING CAPS DESCRIPTION:

A. Multiclone dust collectors shall be in place and operating efficiently when the boilers are burning wood residue.
B. Baghouses shall be in place and functioning efficiently during operation of woodworking facilities.
C. The source is subject to emissions caps of 9.0 tons for individual HAP, 22.5 tons for combined HAPs and 230 tons for VOC per rolling twelve-month period.

PERIODIC MONITORING:

ID	Description	Monitoring Requirements
01,02	Wood-fired boilers with natural gas as secondary fuel	A. Monitor the tons of wood residue burned monthly. B. Monitor the MMSCF of gas burned monthly*. C. Monitor VOC emissions from combustion monthly.
03	Woodworking Operations	A. Monitor whether or not the baghouse(s) are venting to the atmosphere weekly. B. Conduct qualitative visual observations of opacity when the baghouse(s) are venting to the atmosphere weekly. C. Monitor pressure drop across each baghouse weekly.
04	Finish Lines A & B, Water-wash finish line, Rustic Line	A. Monitor the usage in gallons of VOC/HAP containing materials monthly. B. Monitor individual HAP, combined HAP and VOC emissions monthly.
08	Panel Pressing, veneer dryer, veneer splicing and veneer processing line	A. Monitor the usage in gallons of VOC/HAP containing materials monthly. B. Monitor individual HAP, combined HAP and VOC emissions monthly. C. Monitor the square footage of veneer processed in the veneer dryer monthly. D. Monitor the square footage of panel processed in the press monthly.
I.A.	Natural gas-fired dryers and ovens listed as insignificant activities.	A. Monitor the MMSCF of gas burned monthly*. B. Monitor VOC emissions from combustion monthly.

*The natural gas usage in the boilers, dryers and ovens will not be differentiated among these groups of emission points. The source-wide natural gas usage will be monitored monthly.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.